Amendments to the Claims

Claim 1 (Original): An isolated nucleic acid molecule which comprises a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of a plant into which the nucleic acid is introduced and expressed.

Claim 2 (Currently Amended): A nucleic acid as claimed in claim 1 wherein the VRN1 nucleotide sequence:
(i) encodes the VRN1 polypeptide of ~~Fig 7~~ SEQ ID NO: 11, or
(ii) encodes a variant resistance polypeptide which is a homologous variant of ~~the resistance polypeptide shown in Fig 7~~ SEQ ID NO: 11 and which shares at least about 50%, 60%, 70%, 80% or 90% identity therewith[[,]].

Claim 3 (Currently Amended): A nucleic acid as claimed in claim 1 wherein the VRN1 nucleotide sequence is ~~that shown in Fig 7~~ from nucleotides 269-1295 inclusive of SEQ ID NO: 10, or a sequence which is degeneratively equivalent thereto.

Claim 4 (Currently Amended): A nucleic acid as claimed in claim 1 wherein the VRN1 nucleotide sequence is ~~shown in Annex 1~~ SEQ ID NO: 1.

Claim 5 (Currently Amended): A nucleic acid as claimed in claim 1 wherein the VRN1 nucleotide sequence encodes a derivative of the polypeptide ~~shown in Fig 7~~ of SEQ ID NO: 11 by way of addition, insertion, deletion or substitution of one or more amino acids.

Claim 6 (Currently Amended): A nucleic acid as claimed in claim 1 wherein the VRN1 nucleotide sequence consists of an allelic or other homologous variant of the nucleotide sequence wherein the VRN1 nucleotide sequence is ~~that shown in Fig 7~~ from nucleotides 269-1295 inclusive of SEQ ID NO: 10, or a

sequence which is degeneratively equivalent thereto.

Claim 7 (Currently Amended): A nucleic acid as claimed in claim 6 wherein the VRN1 nucleotide sequence is the *VRN1* paralogue *RTV1* of ~~Figure 9~~ SEQ ID NO: 48.

Claim 8 (Previously Presented): An isolated nucleic acid which comprises a nucleotide sequence which is the complement of the VRN1 nucleotide sequence of claim 1.

Claim 9 (Currently Amended): An isolated nucleic acid for use as a probe or primer, said nucleic acid having a distinctive sequence of at least about 16-24 nucleotides in length, which sequence is present in ~~Annex I~~ SEQ ID NO: 1 or a sequence which is degeneratively equivalent thereto, or the complement of either.

Claim 10 (Currently Amended): A nucleic acid as claimed in claim 9 which is selected from the oligonucleotides (shown below in the 5' to 3' orientation):

S63	CAACGGTTAGCCCAAAC	(SEQ ID NO: 20)
S64	GTTTGGGCTAACCGTTG	(SEQ ID NO: 21)
V11	GAGACCAGTTTTGTTTTCC	(SEQ ID NO: 22)
S62	GACAAATATAGGTGGAAAGG	(SEQ ID NO: 23)
S66	AAAGGGGAGTAGGTGGG	(SEQ ID NO: 24)
V7	CTCTCTGGTCTTCTCTTC	(SEQ ID NO: 25)
V10	GAAGAGAAGACCAGAGAG	(SEQ ID NO: 26)
V6	TTTTCTCATCCACTATCC	(SEQ ID NO: 27)
S51	TTTCTTGGATAGTGGATGAG	(SEQ ID NO: 28)
S65	AAAACAGGGAAGAGTAAGAAG	(SEQ ID NO: 29)
S52	CATTGGTTGTGTTTGGTGGG	(SEQ ID NO: 30)
V5	GGTCTCTATGTATTGTGC	(SEQ ID NO: 31)
V4	GCACAATACATAGAGACC	(SEQ ID NO: 32)
V12	AGATTGATTACACGACTCC	(SEQ ID NO: 33)
V8	CCCAGATAAGTTTGTGAG	(SEQ ID NO: 34)
V3	ATTCCGCTCACAACCAC	(SEQ ID NO: 35)
V15	GTTTGAAGTGGTTGTGAG	(SEQ ID NO: 36)
V14	TACCCATCACCACTTCC	(SEQ ID NO: 37)
S60	CAGAAGAAGGAAAGATGACC	(SEQ ID NO: 38)
S61	GAAGAAAGAGAGAGAGCC	(SEQ ID NO: 39)
V13	ACCCTTTCTTCAGAGTG	(SEQ ID NO: 40)
V9	CTCTCTCTCTTTCTTCTG	(SEQ ID NO: 41)
V16	CCACTCTGAAGAAAGGG	(SEQ ID NO: 42)

S46 CCTTCTGTTTCTGTTTCTC (SEQ ID NO: 43)
S45 GAGAAACAGAAACAGAAGG (SEQ ID NO: 44)
V2 AAGATACTCCTACACGAC (SEQ ID NO: 45)
V17 GTCTCGTTTTTTCTCTCGG (SEQ ID NO: 46)
S49 CTACCACAGTTCCCACCTAC (SEQ ID NO: 47)
8H8DIAG1 ACCTGCTTCTGCCAACCGCTC (SEQ ID NO: 14).

Claim 11 (Currently Amended): A process for producing a nucleic acid comprising the VRN1 nucleotide sequence encoding a derivative of the polypeptide ~~shown in Fig 7~~ of SEQ ID NO: 11 by way of addition, insertion, deletion or substitution of one or more amino acids or sequence degeneratively equivalent thereto.

Claim 12 (Currently Amended): A method for identifying or cloning a nucleic acid selected from the group consisting of a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of a plant into which the nucleic acid is introduced and expressed, a variant of said VRN1 sequence and a VRN1 paralogue of RTV1 of ~~Figure 9~~ SEQ ID NO: 48, which method employs a nucleic acid selected from the group consisting of a probe or primer having a sequence of about 16-24 nucleotides in length present in ~~Annex I~~ SEQ ID NO: 1, a complementary sequence of a sequence present in ~~Annex I~~ SEQ ID NO: 1, a sequence degeneratively equivalent to a sequence present in ~~Annex I~~ SEQ ID NO: 1, and a sequence as claimed in claim 10.

Claim 13 (Previously Presented): A method as claimed in claim 12, which method comprises the steps of:

a. providing a preparation of nucleic acid from a plant cell;
b. providing said probe or primer sequence;
c. contacting nucleic acid in said preparation with said probe or primer sequence under conditions for hybridization; and,
d. identifying nucleic acid in said preparation which

hybridises with said nucleic acid molecule.

Claim 14 (Previously Presented): A method as claimed in claim 12, which method comprises the steps of:

a. providing a preparation of nucleic acid from a plant cell;
b. providing a pair of said primers, said primers being suitable for PCR;
c. contacting nucleic acid in said preparation with said primers under conditions for performance of PCR;
d. performing PCR and determining the presence or absence of an amplified PCR product.

Claim 15 (Original): A method as claimed in claim 14 wherein the preparation of nucleic acid is obtained from a Brassicaceae plant.

Claim 16 (Previously Presented): A recombinant vector which comprises the nucleic acid of claim 1.

Claim 17 (Original): A vector as claimed in claim 16 wherein the nucleic acid is operably linked to a promoter for transcription in a host cell, wherein the promoter is optionally an inducible promoter.

Claim 18 (Previously Presented): A vector as claimed in claim 17 which is a plant vector.

Claim 19 (Previously Presented): A method for transforming a host cell, which comprises the step of introducing the vector of any one of claim 18 into a host cell, and optionally causing or allowing recombination between the vector and the host cell genome such as to transform the host cell.

Claim 20 (Previously Presented): A host cell containing or transformed with a heterologous vector of claim 18.

Claim 21 (Currently Amended): A method for producing a transgenic plant, which method comprises the steps of:
(a) performing a method as claimed in claim 19 wherein the host cell is a plant cell, and
(b) regenerating a plant from the transformed plant cell.

Claim 22 (Previously Presented): A transgenic plant which is obtainable by the method of claim 21, or which is a clone, or selfed or hybrid progeny or other descendant of said transgenic plant, which in each case includes a heterologous nucleic acid wherein said heterologous nucleic acid is a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of plant into which the nucleic acid is introduced and expressed or a variant thereof.

Claim 23 (Currently Amended): A plant as claimed in claim 22 which is selected from the list consisting of: rice; maize; wheat; barley; oats; rye; oil seed rape; sugar beet; maize; sunflower; soybean; sorghum; lettuce; endive; cabbage; broccoli; cauliflower; carnations; and geraniums.

Claim 24 (Previously Presented): A part of propagule from a plant as claimed in claim 22.

Claim 25 (Previously Presented): An isolated polypeptide which is encoded by the VRN1 nucleotide sequence of claim 1.

Claim 26 (Currently Amended): A polypeptide as claimed in claim 25 which is the VRN1 resistance polypeptide ~~shown in Fig~~ [[4]] of SEQ ID NO: 11.

Claim 27 (Previously Presented): A method of making the polypeptide of claim 26, which method comprises the step of causing or allowing expression from a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of plant into which the nucleic acid is introduced and expressed, in a suitable host cell.

Claim 28 (Original): A polypeptide which comprises the antigen-binding site of an antibody having specific binding affinity for the polypeptide of claim 26.

Claim 29 (Currently Amended): A method for assessing the vernalisation phenotype of a plant, the method comprising the step of determining the presence and/or identity of a VRN1 allele therein comprising the use of a nucleic acid selected from the group consisting of a probe or primer having a sequence of about 16-24 nucleotides in length present in ~~Annex I~~ SEQ ID NO: 1, a complementary sequence of a sequence present in ~~Annex I~~ SEQ ID NO: 1, a sequence degeneratively equivalent to a sequence present in ~~Annex I~~ SEQ ID NO: 1, and a sequence as claimed in claim 10.

Claim 30 (Previously Presented): A method for influencing or affecting the vernalisation phenotype of a plant, which method comprises the step of causing or allowing expression of a heterologous nucleic acid as claimed in claim 1 within the cells of the plant, following an earlier step of introducing the nucleic acid into a cell of the plant or an ancestor thereof.

Claim 31 (Original): A method as claimed in claim 30 for modifying the kinetics and/or optimal temperature of the vernalization response such as to alter the phenotype of the plant with respect to any one or more of: geographic range;

length of a vernalization period; length of a vegetative growth phase.

Claim 32 (Previously Presented): A method as claimed in claim 30 for reducing the vernalisation requirement of a plant, wherein the heterologous nucleic acid is a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of plant into which the nucleic acid is introduced and expressed.

Claim 33 (Currently Amended): A method as claimed in claim 30 for increasing the vernalisation requirement of a plant, which method comprises any of the following steps of:

(i) causing or allowing transcription from a nucleic acid which is the complement of a VRN1 sequence in the plant such as to reduce VRN1 expression by an antisense mechanism;

(ii) causing or allowing transcription from a nucleic acid which is a VRN1 nucleotide sequence encoding a polypeptide which is capable of specifically altering the vernalisation response of plant into which the nucleic acid is introduced and expressed such as to reduce VRN1 expression by co-suppression; and

(iii) use of nucleic acid encoding a ribozyme specific for a nucleic acid selected from the group consisting of a VRN1 sequence which encodes the VRN1 polypeptide of ~~Fig. 7~~ SEQ ID NO: 11 and a variant resistance polypeptide ~~shown in Fig. 7~~ of SEQ ID NO: 11 which shares at ~~elast~~ least about 50%, [[6-%]] 60%, 70%, 80%, or 90% identity therewith.

Claim 34 (Original): An isolated nucleic acid molecule encoding the promoter of the VRN1 gene, or a homologous variant thereof which has promoter activity.